

A Brief Report on the Icelandic
Translation of the PISA Science Test

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Concerns have been raised about the quality of the Icelandic translation of the PISA test in Iceland. No attempts have been made to compare the quality of the Icelandic translation to translations into other languages. This brief report takes five examples from the PISA Science test and compares them to the original, as well as translations into ten other languages. The results show that in all five cases the Icelandic text does not seem to follow the PISA translation guidelines of not complicating vocabulary or syntax unnecessarily whereas the translations into other languages seem to follow those guidelines. In some cases, this only makes the text more difficult to read. In at least one instance even persons with a perfect command of Icelandic would have a serious problem understanding the text as it was meant to be understood. This raises the question of whether there were problems with the Icelandic translation process and whether the translators and the verifier did follow PISA guidelines.

Comparison between educational systems in different countries is an important part of improving and maintaining a good educational system. PISA (Programme for International Student Assessment) sets international tests triennially. To ensure that the tests are comparable between countries the difficulty of the language of the exam has to be similar between them. Therefore, the translation of the exams has to follow PISA guideline. The translation guideline stipulates the double translation method where two translators translate independently and then the third translator reconciles the translations. These three translators are hired by the respective countries. A final version of the translation is sent to a verifier, a translator employed by PISA, who reads over the translation, compares it to the original and makes final corrections (PISA, 2010). The Icelandic body, Menntamálastofnun (2016) that supervises PISA tests uses this process.

The translations of the exams follow guidelines set by PISA (National Project Managers' Meeting, 2010). One of the most important guidelines is

As a general rule, translators should try their best to avoid translating difficult words in the text by using easier words, or paraphrases that use more common terms. Conversely, common language terms used in the source materials should not be translated into more 'technical', or 'scientific' or 'literary' expressions.

Another important guideline is:

Avoid complicating or simplifying the vocabulary and the syntax.

Concerns have been raised about the translation into Icelandic by Prof. Rognvaldsson, Professor of Icelandic Language, University of Iceland (Ruv, 2016). His main concern is that the Icelandic text sounds un-Icelandic. It can be difficult to judge what is the correct way to phrase something in Icelandic. It is, however, possible to compare the Icelandic translation to translations into other languages. A comparison between translations is possible as PISA has published 90 translations of five questions of the scientific part of PISA on <https://www.oecd.org/pisa/test/other-languages/>

In this brief report five translations into Icelandic will be compared to the English original and 10 other translations of the test. The passages were selected because they raise questions as to the quality of the Icelandic translations and whether the translation keeps to PISA guidelines not to make the text more difficult.

The translations selected are translations made in the Germanic languages (Faroese, Danish, Bokmal – Norwegian, Nynorsk – Norwegian, Swedish, German and Dutch) and French (which PISA recommends that translators use a reference language) and Spanish and Italian. Of those languages Icelandic is most closely related to Faroese, then to Scandinavian languages and then to other Germanic languages.

A very literal back translation into English is provided when it helps non-Icelandic speakers to understand how the sentence has been modified

Example 1

The original: 'Scientists capture some of the birds and tag their legs with a combination of coloured rings and flags.'

Icelandic translation 'Vísindamenn fanga nokkra fugla og merkja þá með lituðum hringjum og merkjum sem eru sett um fætur þeirra.'

Back translation of the Icelandic 'Scientists capture some of the birds and tag them with coloured rings and flags which are placed around their feet.'

The translation moves phrases around and creates a subordinate clause ('sem eru sett um fætur þeirra' Eng. 'which are placed around their feet'). It is not clear why this is done. There is no need to create a subordinate clause. The PISA guidelines on translation state that subordinate clauses make a sentence more difficult to read (NPMM, 2010). An alternative translation 'Vísindamenn fanga nokkra fugla og merkja fætur þeirra með blöndu af lituðum hringjum og merkjum.' preserves the word order in the original text, conforms to normal word order in Icelandic and is more easily understood. The alternative translation back translates into the original.

If we take a look at how this sentence is translated into other languages (see table 1) no language creates a subordinate clause. Even Faroese which is the language closest to Icelandic follows the structure of the original sentence.

Table 1. Translation of 'Scientists capture some of the birds...'

Language	Text	Translated with a subordinate clause?
English Original	Scientists capture some of the birds and tag their legs with a combination of coloured rings and flags.	No
French	Des scientifiques capturent certains oiseaux et les marquent en attachant à leurs pattes une bague et une étiquette colorées.	No
Icelandic	Vísindamenn fanga nokkra fugla og merkja þá með lituðum hringjum og merkjum sem eru sett um fætur þeirra.	Yes
Scandinavian languages		
Faroese	Vísindafólk fanga nakrar av fuglunum og merkja teir við at seta litaðar ringar og fløgg á bein teirra.	No
Danish	Forskerne indfanger nogle af fuglene og mærker deres ben med en kombination af farvede ringe og flag.	No
Bokmal - Norwegian	Forskere fanger noen av fuglene og merker beina deres med en kombinasjon av ringer og merkelapper.	No
Nynorsk - Norwegian	Forskarar fangar nokre av fuglane og merker føtene deira med ein kombinasjon av ringar og merkelappar.	No
Swedish	Forskare fångar några av fåglarna och märker deras ben med en kombination av färgade ringar och etiketter.	No
Other Germanic languages		
German	Wissenschaftler fangen einige der Vögel ein und kennzeichnen ihre Beine mit einer Kombination aus farbigen Ringen und Fähnchen.	No
Dutch	Onderzoekers vangen een aantal vogels en merken ze door een gekleurde ring en vlaggetje aan hun poten te bevestigen.	No
Romance languages		
Spanish	Los científicos capturan algunas aves y marcan las patas con anillos y banderines de diferentes colores.	No
Italian	Gli scienziati catturano alcuni uccelli e li contrassegnano applicando anelli colorati ed etichette sulle loro zampe.	No

Example 2

The original: 'Most migratory birds gather in one area'

Icelandic translation: 'Flestir farfuglar hópa sig'

Back translation of the Icelandic translation: 'Most migratory birds group together'

Here the phrase 'gather in one area' translated by 'hópa sig'. The verb *hópa* means to group. It is not a common verb in Icelandic. A Google search of the verb in Icelandic resulted in c. 5.800 hits and no results for 'farfuglar hópa sig' (Eng. migratory birds group).

A more common verb with a very similar meaning to *gather* is the verb *safna*. In Icelandic you can use that verb over ideas such as 'to gather information' and 'to gather things'. A similar search was conducted on Google for the verb 'safnast saman' resulting in 144.000 hits and five hits for 'farfuglar safnast saman' (Eng. migratory birds gather). It is clear from this that verb 'hópa sig' is not common in Icelandic. A possible alternative translation using the verb *safna*: 'Flestir farfuglar safnast saman á einum stað' uses the default Icelandic word order and back translates into the English original.

Why 'in one area' is left out in the Icelandic translation is not clear. When translations into other languages are examined (see table 2) we can see that none of the translations omit the phrase. The Icelandic sentence is more difficult than the original. It contains a rare verb and omits a part of the original sentence. This is not in accordance with PISA guidelines to avoid complicating the vocabulary.

Table 2. Translations of 'Most migratory birds gather in one area'

Language	Text	Is "gather in one area" translated by one verb?
English Original	Most migratory birds gather in one area	No
French	La plupart des oiseaux migrateurs se rassemblent à un certain endroit	No
Icelandic	Flestir farfuglar hópa sig	Yes
Scandinavian languages		
Faeroese	Flestu flytifuglar savnast á einum staði	No
Danish	De fleste trækfugle samles i ét område	No
Bokmal - Norwegian	De fleste trekkfugler samles i et område	No
Nynorsk - Norwegian	Dei fleste trekkfuglar samlast i eit område	No
Swedish	De flesta flyttfåglar samlas i ett område	No
Other Germanic languages		
German	Die meisten Zugvögel versammeln sich in einem Gebiet	No
Dutch	De meeste trekvogels verzamelen zich op een bepaalde plaats	No
Romance languages		
Spanish	La mayoría de las aves migratorias se reúnen en una zona	No
Italian	La maggior parte degli uccelli migratori si riunisce in una determinata area	No

Example 3

The original text on Sustainable Fish Farming distinguishes between *food* and *nutrients*

The Icelandic translations of the text uses the word *fæða* for both.

In a text on Sustainable Fish Farming it is explained that the Common Sole needs food whereas the Microalgae and Cord Grass need nutrients. In the Icelandic translation *food* is sometimes translated as *fæða* (Eng. *food*) and sometimes as *fóður* (Eng. *fodder*). The word *nutrients* is generally translated as *næring* (Eng. Nourishment. N.B. In Icelandic as well as in English nourishment is usually some sort of food). However, on one occasion *excess nutrients* is translated as *umfram-fæða* (which means something like *excess food*). This means that word *fæða* is used both for nutrients and food. This is confusing as well as wrong because obviously autotrophs such as microalgae don't need food.

In the third question one of the options is 'Increasing the amount of nutrients added to the first tank'. This is translated as 'Að auka fóðurgjöf í fyrsta keríð'. Here the translators use the word *fóður* (Eng. *fodder*) which has only been used in the text for food, never for nutrients. It is very difficult to figure out that the word is meant to refer to nutrients.

When we look at translations into other languages it becomes clear that the other translations never use the same word for *nutrients* and *food*.

This confusion between nutrients and food in the Icelandic text could easily been avoided. The traditional translation for nutrients into Icelandic is *næringarefni* a word formed the same as way as *Næringstoffer* and *Nährstoffe* and with the same meaning. It has such a clear meaning that it can never be used for food. If it had been used there would have been no confusion between food and nutrients in the Icelandic text.

Table 3. Translations of the words *nutrients* and *food*

Language	Words for used food	Words used for nutrients	Word used for nutrients í 3. question	Is the same word ever used for food og nutrients?	Has the word used for nutrients in question 3 been used for nutrients earlier in the text
English Original	Food	Nutrients	Nutrients	No	Yes
French	Nourriture	Nutriments	Nutriments	No	Yes
Icelandic	Fóður/fæða	Næring/fæða	Fóður	Yes	No
Scandinavian languages					
Faeroese	Fóður/føði	Føðsluevni	Føðsluevni	No	Yes
Danish	Føde	Næringsstoffer	Næringsstoffer	No	Yes
Bokmal - Norwegian	Mat	Næringsstoffer	Næringsstoffer	No	Yes
Nynorsk - Norwegian	Mat	Næringsstoff	Næringsstoff	No	Yes
Swedish	Mat/näring/föda	Näringsämnen	Näringsämnen	No	Yes
Other Germanic languages					
German	Futter/Nahrung	Nährstoffe	Nährstoffe	No	Yes
Dutch	Voedsel	Voeding/voedingsstoffen	Voedingsstoffen	No	Yes
Romance languages					
Spanish	Alimento	Nutrientes	Nutrientes	No	Yes
Italian	Cibo	Nutrienti	nutrienti	No	Yes

Example 4

Original text: 'Rocks in space that enter Earth's atmosphere are called meteoroids.'

Icelandic translation: 'Geimgrýti sem berst inn í lofthjúp jarðar kallast reikisteinar.'

The original text is a general definition of a scientific term. This means that students who don't recognize the scientific term meteoroid can figure it out from the general definition, *rocks in space*. The first problem with the Icelandic translation is that it does not contain a general definition. The Icelandic text uses the *geimgrýti* for rocks in space. The Scientific Web of the University of Iceland defines *geimgrýti* as multitudes of rock and iron boulders which float around space (Thorsteinsson, 2012). The Scientific Web editor, Mr Thorsteinsson clearly feels that word *geimgrýti* needs explaining and, therefore that it is not an everyday language. The Icelandic translation thus makes the text more difficult by replacing the general definition with a scientific term/uncommon word. This goes against the advice of PISA that easy words should not be replaced by more difficult words (NPMM, 2010).

Second problem is that the scientific term *reikisteinn* (Eng. meteoroid) is rare in Icelandic. The word is not in the Icelandic Dictionary and a Google search only gives 20-30 hits for usage in text (usage excluding online dictionaries). The Icelandic word *reikisteinn* is a reference to *reikistjarna* (Eng. planet) because meteoroids formed the planets (Bjornsson, 2000). To complicate matters everyday Icelandic uses the word *loftsteinn* (Eng. meteor) for meteoroid, meteorite and meteor. A textbook on astronomy and physics for students aged 13-15 yrs. published in 2013 uses the word *loftsteinn* for meteoroid rather than the word *reikisteinn* (Arason, Haraldsson & Gudmundsson, 2013). It is, therefore, likely that students in Iceland are not familiar with the term *reikisteinn*. Therefore, it is especially important that the general definition 'rocks in space' is clear when the scientific term is so rarely used.

When we look at translations in other languages we can see that 'rocks in space' is expressed in simple everyday language in all of them. Only the Icelandic makes the text more difficult by not providing a simple translation of the phrase 'rocks in space'. On this basis the Icelandic text must be considered to be more difficult than the corresponding text in other languages. Here the translators have not followed the PISA guidelines that states replacing common words with scientific words should be avoided.

Table 4. Translations of 'Rocks in space that enter ...'

Language	Text	A simple explanation of a scientific term
English Original	Rocks in space that enter Earth's atmosphere are called meteoroids.	Yes
French	Les roches présentes dans l'espace qui entrent dans l'atmosphère de la Terre sont appelées des météoroïdes.	Yes
Icelandic	Geimgrýti sem berst inn í lofthjúp jarðar kallast reikisteinar.	No
Scandinavian languages		
Faeroese	Steinar í rúmdini, sum koma inn í atmosferuna hjá jørðini, verða róptir meteorsteinar.	Yes
Danish	Klippestykker i rummet, der trænger ind i Jordens atmosfære, kaldes meteoroider.	Yes
Bokmal – Norwegian	Steiner i verdensrommet som kommer inn i jordas atmosfære, kalles meteoroider.	Yes
Nynorsk – Norwegian	Steinar i verdsrommet som kjem inn i jordas atmosfære, blir kalla meteoroidar.	Yes
Swedish	Stenar i rymden som kommer in i jordens atmosfär kallas för meteoroider.	Yes
Other Germanic languages		
German	Gesteinsbrocken im Weltraum, die in die Erdatmosphäre eintreten, nennt man Meteoroiden.	Yes
Dutch	Rotsblokken die vanuit de ruimte de dampkring van de aarde binnenkomen, worden meteoroiden genoemd.	Yes
Romance languages		
Spanish	Las rocas del espacio que entran en la atmósfera de la Tierra se llaman meteoroides.	Yes
Italian	Le rocce che dallo spazio penetrano nell'atmosfera della Terra sono chiamate meteoroidi.	Yes

Example 5

Original text: 'The vegetation is much greener and more abundant on slope A than on slope B.'

Icelandic translation: 'Í hlíð A vex meiri gróður og hann er mun grænni en í hlíð B.'

Back translation 'In slope A grows more growth and it is much greener than on slope B.'

The Icelandic splits the sentence into two clauses: 'meiri gróður vex í hlíð A' (Eng. 'More growth grows in slope A') and 'hann er mun grænni en í hlíð B' (Eng. 'it is much greener than on slope B.'). The prepositional phrase in the first clause is then moved to the front demanding that the object of the sentence be moved behind the verb ('Í hlíð A vex meiri gróður' Eng. 'In slope A grows more growth'). There is no obvious reason why the translators feel that the sentences should start with 'In slope A'. The translation 'Gróðurinn er grænni og meiri í hlíð A en í hlíð B' is quite acceptable everyday language in Icelandic and even back translates into the original text. It is quite clear that complicated transfers of phrases make the text more difficult to read than text with traditional word order.

When we look at the other translations we see that they keep the order subject, verb, complement. Here the Icelandic text has been made more difficult by the unnecessary change in syntax which goes against PISA guidelines that translators should avoid complicating syntax (NPMM, 2010).

Table 5. Translations of 'The vegetation is much greener ...'

Language	Text	The sentence starts with a subject (the vegetation)?
English Original	The vegetation is much greener and more abundant on slope A than on slope B	Yes
French	La végétation est bien plus verte et abondante sur le versant A que sur le versant B	Yes
Icelandic	Í hlíð A vex meiri gróður og hann er mun grænni en í hlíð B	No, prepositional phrase
Scandinavian languages		
Faeroese	Vøksturin er nógv meiri og nógv grønnari í líð A enn í líð B.	Yes
Danish	Bevoksningen er meget grønnere og kraftigere på skråning A end på skråning B	Yes
Bokmal – Norwegian	Vegetasjonen er mye grønnere og frodigere i dalside A enn i dalside B	Yes
Nynorsk – Norwegian	Vegetasjonen er mykje grønnare og frodigare i dalside A enn i dalside B	Yes
Swedish	Växtligheten är mycket grönare och ymnigare på sluttning A än på sluttning B	Yes
Other Germanic languages		
German	Die Vegetation an Hang A ist wesentlich grüner und üppiger als an Hang B.	Yes
Dutch	De vegetatie op helling A is veel groener en weelderiger dan op helling B	Yes
Romance languages		
Spanish	La vegetación es mucho más verde y abundante en la ladera A que en la ladera B	Yes
Italian	La vegetazione è molto più verde e rigogliosa sul versante A piuttosto che sul versante B	Yes

In this brief report I have pointed out five examples of translations where the vocabulary or syntax in the Icelandic translations have been complicated for no apparent reason. I could have taken more examples but I chose to keep my examples few. In some cases, the language is just made more complicated which should only affect students who are not proficient in Icelandic, such as students with poor reading skills or children of immigrants. In other cases, the vocabulary is so complicated (rocks in space) or wrong (fodder/food for algae) that it could affect most students. As for the confusion of using the same word *fæða* for nutrients and food, it only makes the text more difficult to comprehend and there is no indication in the Icelandic text that the text is about inorganic chemicals.

I have only had the opportunity to look at part of the scientific tests of PISA, but have had access to neither the reading comprehension nor the math part. It is therefore not clear whether the problems extend to those tests. I have not been able to find translations of earlier scientific tests so I do not know if the problems in the scientific translations have been a part of the Icelandic PISA exam from the beginning. Thus, I have no idea of the scale of the problem.

As was pointed out in the beginning of this report, the Icelandic translation is done by translators hired by Menntamálastofnun, the Icelandic government body responsible for PISA tests in Iceland. PISA hires the verifier who has the final say of the translation. It seems that the persons hired have not put enough emphasis on keeping the difficulty level of the Icelandic text on a par with the original. What should be done to correct this is a matter for PISA and Menntamálastofnun.

About the author

Asdis Bergthorsdottir (asb23@hi.is) is a licenced psychologist, with a BA in English, PGD in Disability Studies and a 2 years UGD in Computer Studies. She has also finish several individual courses at university in subjects such as Biology Teacher Training and Icelandic Grammar. She has finished close to 13 years of full time university studies (777 ECTS) at the University of Iceland and the University of Reykjavik. She currently works as a computer programmer, psychologist and crossword compiler.

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